

**Page Electric Utility Service Specifications**

**SECTION I – GENERAL INFORMATION**

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INTRODUCTION - GI-1

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**PURPOSE:** In this manual, Page Electric Utility (PEU), presents information and general specifications relative to the introduction and use of electricity supplied from its lines. The manual is intended as a guide in making electrical installations to protect the interests of the customer and to comply with regulations which experience has shown to be necessary for safe, adequate and satisfactory service.

**SCOPE:** The information and specifications included in this manual cover conductors and equipment connecting PEU's electricity supply system to the premises and other subjects associated with the supply of electricity that are of mutual interest to the customer, architect, engineer and electrical contractor. It is not a complete set of rules governing the installation of electrical wiring and equipment.

**RATE SCHEDULE:** Upon request, rate schedules and/or the Rules and Regulations are available for examination at the business office of PEU.

**COOPERATION:** It is the sincere desire of PEU to provide and maintain dependable, safe and satisfactory electric service in a courteous and efficient manner. Cooperation of customers and their agents is appreciated. It is necessary to provide PEU with information leading to new or increased electric service early in the development of plans to aid the proper scheduling of service. Cooperation of all interested parties and strict adherence to the specifications in the manual will expedite satisfactory electric service.

**CODES:** These specifications are a supplement to the National Electrical Code, but they are not a substitute for that code nor for city/county codes. PEU endorses the city/county inspecting agency's right to insure that the customer's wiring installations be made in accordance with applicable codes. (See definition of National Electrical Code in GI-2, page 3)

**REQUESTS FOR INFORMATION:** PEU will assist the customer with any problem in connecting with the utilization of electric service. This assistance is available by calling the business office at 645-2419 or 645-2114 during normal business hours - Monday - Friday, 8:00 a.m. to 5:00 p.m.

**CUSTOMER ENERGY MANAGEMENT:** A PEU representative can provide you with useful information about electric resistance heating, electrapac, heat pumps, refrigeration, water heaters, residential and commercial lighting, industrial equipment cooling, home economy and security lighting.

**OUTAGES:** Twenty-four hour service is available by calling 645-2419 for electrical trouble and power outages.

**INSPECTIONS/APPROVAL & PERMITS:** Coconino County and the City of Page have ordinances prohibiting PEU from energizing the load side of the electrical service to the customer until the customer has obtained the necessary permits and until the actual electrical installation has been approved by the municipal authorities. Therefore, the customer should determine the requirements of the building safety/building inspection department of the city/county having jurisdiction before beginning any job subject to inspection by that department. In all areas the service entrance must be in accordance with PEU's Service Specifications the National Electric Code before connection can be made to PEU lines. The customer should make every effort to request service sufficiently in advance of the actual need to enable PEU to check the capacity of its facilities and to ensure proper scheduling.

**WIRING ADEQUACY:** Compliance with the National Electrical Code or local city/county codes assures only that the installation will conform with recognized minimum safe practices. The provision for adequate electrical capacity must be decided by the customer. An electrical contractor should aid the customer in determining that his electrical installation will have adequate capacity for future use.

**ACCESS TO CUSTOMER'S PREMISES:** A PEU authorized employee or agent shall have access, at all reasonable times, to its meters and equipment installed on the customer's premises.

**IDENTIFICATION OF EMPLOYEES:** Employees of PEU authorized to visit the customer's premises are furnished with an identification which they will show upon request. This is done to protect the customer from unauthorized persons representing themselves as PEU employees.

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INTRODUCTION - GI-1

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**RESPONSIBILITY:** The customer has the responsibility to maintain his wiring and equipment in safe operating condition. PEU cannot accept any responsibility for the customer's wiring and equipment.

**ADDRESSING - JOB LOCATION:** The assignment of street addresses is performed according to the address and street assignment policy adopted by the City of Page. Once assigned, addresses may not be arbitrarily changed. Any desired change should be submitted in writing to the city or county office which assigned the number originally.

Any variance from the addresses assigned by the city may delay the energizing of electrical service since clearances are dispatched to the servicing utility using the address, apartment number, suite number, etc., originally assigned.

A legal description of the property or the subdivision name and lot number, plus a plot plan, is required by the city or county having jurisdiction, prior to assigning the address. The address and street assignment policy recommend that the lettering system (Apt. A, Suite B, etc.) may not be used in assigning addresses. (PEU will accept numeric designations and alpha designations.)

The customer shall furnish PEU with the assigned address corresponding to the job location when the application for electric service is made to PEU. This address, including the lot number, if any, shall be posted in a conspicuous location at the job site to assist PEU personnel in performing their work as scheduled.

**ENFORCEMENT OF SPECIFICATIONS:** PEU will allow a 45-day grace period prior to enforcing new or revised specifications placed in the manual. The only exception will be where hazardous or safety-related requirements are involved. The cover letter, sent with each new or revised specification, will state the date enforcement will commence.

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DEFINITIONS - GI-2

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The following terms, when used herein, shall have the meaning specified:

**AWG - AMERICAN WIRE GAUGE:** The AWG assigns a number to a particular size of wire according to circular mill area to a maximum size of #0000.

**BUILDING:** A structure which stands alone or is separated from adjoining structures by fire walls (Minimum 2-hour rated) with all openings therein protected by fire doors.

**CLEARANCE:** The approval of an electrical installation by the city or county having jurisdiction in accordance with its standards.

**COST OR EXPENSE:** The cost of all materials and equipment, labor and other definite charges applicable thereto, plus a reasonable percentage for engineering, purchasing, the use of construction equipment and other costs of general character, involved in connection with the work to be performed.

**CUSTOMER:** Any person utilizing services from PEU.

**ELECTRICAL SERVICE SPECIFICATIONS:** A PEU manual outlining general and specific information regarding PEU requirements for wiring, metering, equipment, etc.

**INSTRUMENT TRANSFORMER:** A device which is intended to reproduce in its secondary circuit, in a definite and known proportion suitable for utilization in measurement, control or protective devices, the current (or voltage) of its primary circuit, with its phase relations substantially preserved. Types: Potential (voltage) Transformers (PT); Current Transformers (CT).

**GROUND:** A conducting connection between an electrical circuit or equipment and earth or some conducting body which serves in place of the earth.

**LINE:** A system of poles, ducts, wires or fixtures used for the transmission and distribution of electricity.

**LOAD:** The rating of the power consuming apparatus which may be connected to PEU's installation or system under consideration.

**MCM - THOUSAND CIRCULAR MILLS:** The size of any wire larger than #0000 is expressed directly in circular mill area. Example: 250,000 CMil = 250 MCM.

**NEC - NATIONAL ELECTRICAL CODE:** National Electrical Code is a nationally accepted guide to safe installation of electrical wiring and equipment. PEU considers the NEC to be minimum.

**PEU:** Page Electric Utility.

**POINT OF ATTACHMENT:** The point at which restraining or anchoring contact is made between PEU facilities and those of the customer. This is strictly a mechanical consideration and does not necessarily imply any separation of responsibilities.

**POINT OF DELIVERY:** The point of interconnection between PEU's electrical facilities and those of the customer. It is the exact point at which the separation of responsibility occurs for the construction, ownership, operation and maintenance of all facilities except metering equipment. The point of delivery will be made by PEU in all cases.

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DEFINITIONS - GI-2

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**PUESR - PACIFIC UTILITIES ELECTRIC SERVICE REQUIREMENTS:** The PUESR Committee, an organization comprised of utility representatives from the southwest section of the United States, works to promote the standardization of electric service requirements and the design and engineering of metering and service equipment. PEU subscribes to the results of this standardization.

**EUSERC - ELECTRIC UTILITY SERVICE EQUIPMENT REQUIREMENTS COMMITTEE:** The EUSERC Committee, an organization comprised of utility representatives from the southwest section of the United States, works to promote the standardization of electric service requirements and the design and engineering of metering and service equipment.

**READILY ACCESSIBLE:** As defined by the electrical codes, readily accessible means "Capable of being reached quickly for operation, renewal of inspections, without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders, chair, etc."

**SERVICE CONNECTION:** A service connection is one service lateral and its associated service entrance.

**SERVICE DROP:** Refer to service lateral.

**SES - SERVICE ENTRANCE SECTION:** Is that part of installation from the point of attachment or termination of the service lateral to and including the service equipment on the customer's premises.

**SERVICE EQUIPMENT:** The necessary electrical facilities, usually consisting of a circuit breaker or switch and fuses, conductors and accessories, constituting the main control and cutoff of the supply and which are installed, owned and maintained by the customer.

**SERVICE LATERAL:** A system of wires, fixtures and sometimes poles or the equivalent ducts, conduits and cables used to conduct electricity from the line to the Point of Delivery.

**TEMPORARY SERVICE:** Short-term, non-recurring service of a transitory character, as determined solely by PEU, which may include in its evaluation the speculative character or questionable permanency of the customer's operations.

**U.L. - UNDERWRITERS LABORATORY:** An independent laboratory facility for testing all types of electrical facilities.

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POWER REQUEST INFORMATION - GI-3

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**NEW SERVICE:** Application for electric service from PEU must be made in person at the business office. Application for electric service must be made by the customer desiring same or through his legally authorized agent.

PAGE ELECTRIC UTILITY  
19 Poplar St. - Box 1955  
Page, AZ 86040  
(928) 645-2419  
(928) 645-5322 FAX

**MODERNIZATION (REVAMP):** Prior to the service entrance being changed or relocated to supply new or existing load, contact PEU at the address listed above.

**TEMPORARY SERVICE:** Before temporary installations are made, the customer should contact PEU concerning the availability and costs of the requested services.

In addition to the temporary load information, the customer may be required to provide PEU with a complete statement regarding his requirements for permanent service. This information may enable PEU to construct facilities that could be utilized to supply permanent service, thereby reducing the costs involved in providing temporary service.

**CONSTRUCTION SURVEY ORDER (CSO):** PEU has established the CSO as a means of accumulating information pertaining to customer requests which require:

1. Survey to determine possible charges to the customer by PEU. Typical examples include but are not limited to the following:
  - \* Moving PEU's facilities (poles, down-guys, etc.)
  - \* Underground conversions (changing electric service from overhead to underground.)
  - \* Underground subdivisions.
  - \* Non-standard services.
2. The extent of the customer's construction contribution on the line side of the meter.
3. Preliminary information pertaining to special arrangements or requirements which should be included in the job design.

**REQUIRED INFORMATION (For all requests of service):**

- \* Name of customer - responsible for all bills.
- \* Service address - street address or location.
- \* Mailing address.
- \* Service entrance capacity & load breakdown.
- \* Desired service voltage, wires, phases. (Service voltage, number of phases & wires will depend upon available lines, the customer's location & the size & nature of the proposed service.) See page 8, GI-4 for availability.
- \* A scaled site plan with details is required.

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POWER REQUEST INFORMATION - GI-3

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**SCHEDULING OF CONSTRUCTION:** Adequate time must be provided in the schedule to accomplish:

- \* Field investigation
- \* Design of necessary facilities
- \* Preparation of cost estimates (if applicable)
- \* Notification of customers (if costs are involved)
- \* Receipt of payment(s) from customer (if required)
- \* Securing necessary permits, easements, right-of-way
- \* Allocation of materials
- \* Scheduling of crews
- \* Completion of construction
- \* Electrical inspection & clearances by the city or county. (Meter Set only) See page 1, GI-1.

It is suggested, therefore, that the necessary information be submitted to PEU as early in the development process as possible.

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POWER REQUEST INFORMATION - GI-3

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CONSTRUCTION SURVEY ORDER (CSO)

IN ORDER TO ASSIST YOU AS OUR VALUED CUSTOMER, PLEASE COMPLETE AND RETURN THIS FORM TO PAGE ELECTRIC UTILITY OFFICE LOCATED AT 19 POPLAR STREET, PAGE, ARIZONA OR FAX TO 928-645-5322.

CUSTOMERS NAME (RESPONSIBLE FOR ALL BILLS):

SERVICE ADDRESS - STREET ADDRESS AND LOCATION:

MAILING ADDRESS:

SERVICE ENTRANCE CAPACITY & LOAD BREAKDOWN:

DETAILS: Will this project be a new service, maintenance, repair or overhaul of customers service, line extension from existing primary infrastructure, etc.? Please explain in detail.

DESIRED SERVICE VOLTAGE, WIRES, PHASES. (Service voltage, number of phases & wires will depend upon available lines, the customer's location and availability.)see page 8, GI-4 for availability:

PROVIDE A SITE PLAN WITH DETAILS PERTAINING TO PROPOSED SERVICES



**CHARACTER OF SERVICE & LIMITATIONS - GI-4**

**CHARACTER OF SERVICE:** The following standard types of service are available for residential and general service installations based on the customer's location and the size and nature of the proposed service.

Prior to purchasing any electrical equipment, it is necessary for the consumer to contact the PEU business office to determine availability of the type of service requested.

**Single-Phase:**

**Two (2)-wire, 120 volts** for installations of not more than two (2) circuits, and/or motors of less than ½ HP except in the case of special equipment. Underground service will be supplied only when adequate facilities are available at the location.

**Three (3)-wire, 120/240 volts** to structures with more than two (2) circuits, and/or electric ranges, air conditioners, water heaters, space heating equipment and motors up to and including 7½ HP. (See limitations below.)

**Three-Phase:**

**120/240 volts, four (4)-wire** (one meter) is available for 3-phase commercial and industrial loads. (See limitations below.)

Residential limitations are explained on GI-4. (See limitations below.)

**120/208 volts, four (4)-wire** in some areas for lighting, power and heating loads. Available only by special arrangements. (See limitations below.)

**277/480 volts, four (4)-wire** in some areas by special arrangement. (See limitations below.)

**480 volts, three (3)-wire** available only by special arrangement for fire pumps and continuous processes requiring orderly shutdown. All applications for service without ground fault protection will be reviewed on an individual basis. (See limitations below.)

**LIMITATIONS:** All limitations are based on normal loads and refer only to one customer being served from one transformer installation.

NOTES	CLASSIFICATION					OVERHEAD LIMITATIONS				UNDERGROUND LIMITATIONS			
	PHASE	WIRE	VOLTAGE	RESIDENTIAL	GENERAL	MINIMUM		MAXIMUM		MINIMUM		MAXIMUM	
						SES AMPS	LOAD KW	SES AMPS	LOAD KW	SES AMPS	LOAD KW	SES AMPS	LOAD KW
A	1	3	120/240	R	G	60		800	167	100	5	500	100
B	3	4	120/240	R	G	100	10	1200	500	100	10	500	100
C	3	4	120/208		G	100	50	2400	750	200	50	4000	1500
D	3	4	277/480		G	100	50	2000	1500	200	100	4000	----

CHARACTER OF SERVICE & LIMITATIONS - GI-4

**LIMITATIONS:** - Continued

All new buildings must be wired for one meter. Presently wired buildings adding load necessitating a revamp of meter facilities must wire to be served through one meter. Only one service lateral per building will be permitted by PEU. (See M-12 for exceptions)

On 3-phase circuits, no 120-volt single-phase load shall be connected to the power (wild) leg.

Residential qualifications for 120/240-volt, 3-phase, 4-wire service are as follows:

**Residential - Underground Subdivisions & Planned Area Developments**

1. Three-phase service is **NOT** available to residential customers in underground served subdivisions and planned area developments except as noted in Article 4.
  - a. Three-phase service from existing overhead facilities on the perimeter of the development will not be permitted.
  - b. A contribution for the cost of 3-phase service does not qualify the customer for 3-phase service. A cost estimate will not be submitted in these cases.

**Residential - Overhead Served Areas**

2. A 3-phase residential load of 3-HP or a 3-ton heat pump or air conditioning load qualifies for 3-phase service if:
  - a. Existing transformer is adequate, no change out necessary to increase capacity.

**-AND-**

  - b. Existing secondary conductors are adequate, no change out necessary to provide for or increase capacity. The service drop will be upgraded at no cost to the customer.
3. A 3-phase residential load qualifies for 3-phase service under the overhead line extension policy if the load consists of:
  - a. A heat pump or air conditioning unit with a compressor of more than 7½-HP or a capacity of greater than 5 tons utilizing a single compressor

**-OR-**

  - b. A 3-phase motor larger than 7½-HP.

**Note:** If the load requirements of 3a or 3b are not met, a contribution for the total cost of 3-phase facilities does **NOT** qualify the customer for 3-phase service.

**-AND-**

The HP ratings of more than one motor may **NOT** be added together to achieve a qualifying load.

4. **Exceptions:**

- a. Underground 3-phase residential service may be granted where the single-phase load would exceed the capacity of a single-phase 600-Amp service entrance section.
- b. Conversion districts with existing 3-phase service.
- c. Underground served residential developments where a prearranged agreement to provide 3-phase service has been approved by PEU management.

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CHARACTER OF SERVICE & LIMITATIONS - GI-4

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**Exceptions - Continued**

Three-phase is available in certain areas and usually results in costs to the customer. Consult the PEU business office before purchasing 3-phase equipment or wiring for this type of equipment.

The operation of large flashing sign, welders and furnaces, dielectric and induction heaters, radio and television transmitters, X-ray equipment, reciprocating compressors and similar apparatus having intermittent flow of large currents sometimes interferes with other users of the electric service. The customer shall consult PEU in each case so that the character of electric service that will be supplied, the corrective equipment needed and other special precautions that must be taken will be mutually known before planning to use such apparatus.

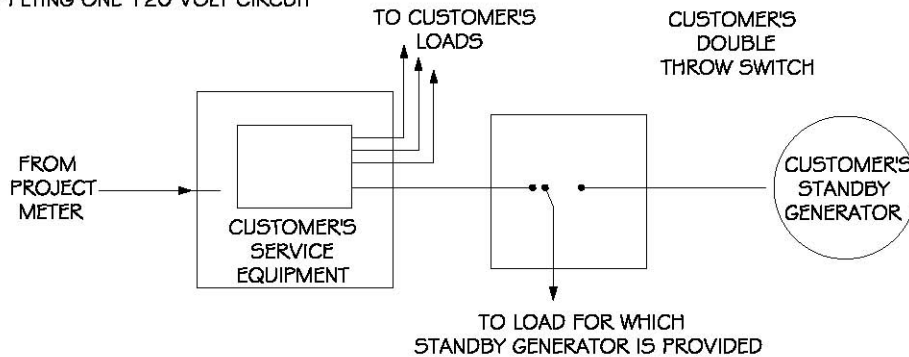
EQUIPMENT PROTECTION - GI-5

The installation and maintenance of the following protective devices is recommended by PEU. However, they are a part of the customer's system and are, therefore, a responsibility of the customer.

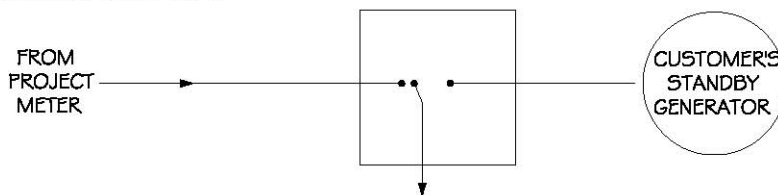
**PEU will not be responsible in any way for damage to the customer's equipment due to the failure of the customer to provide adequate protection.**

1. All motors should be properly protected against overload.
2. It is the customer's responsibility to provide phase-failure protection in poly-phase motor circuits to prevent motor damage in the event of phase failure.
3. Phase reversal protection together with circuit breakers or equivalent devices should be used on all 3-phase installations for elevators, cranes and similar utilization to protect the installation from reversal of phase rotation.
4. All motor controllers should be arranged so that in the event of sustained voltage failure the motor will be disconnected from the line, unless it is equipped for automatic starting after such a failure, where continuous operation of motorized equipment is essential, motor controllers should be arranged to allow motors to operate through a transient no voltage condition lasting for ½ second. PEU should be consulted where problems of this nature may be encountered.
5. Standby generator transfer switch requirement:

CONNECTION OF STANDBY GENERATOR SUPPLYING ONE 120 VOLT CIRCUIT



CONNECTION OF STANDBY GENERATOR SUPPLYING CUSTOMER'S ENTIRE LOAD



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**ALLOWABLE MOTOR STARTING CURRENTS - GI-6**

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The starting currents drawn from the source of supply by each rated size of alternating current motor (such values of currents to be determined by test or based on published data by the manufacturer) shall not exceed the allowable locked rotor current value for alternating current motors as given in the latest edition of the National Electric Code (table-430-151). Correction shall be allowed to adjust these current values so that they compensate for the difference between the terminal voltage and the rated voltage when applicable.

If the starting current of a motor will exceed the value given in the latest edition of the National Electric Code (table-430-151) or create undesirable service conditions, the customer will be required to install, at his own expense, a suitable reduced voltage or increment starting device to limit such starting current to the necessary values listed. The PEU business office should be consulted for further information.

The values defined in the National Electric Code apply only to motor types and nominal system voltages not exceeding those values quoted in these specifications. For types exceeding these quoted values consult with the PEU business office for special conditions, prior to installation.

208 and 220 volt motors larger than 25-HP and 440 volt motors larger than 75-HP shall be equipped with reduced voltage and increment starting devices to limit the starting currents to the 25-HP limit on 208 and 240 volt and to the 75-HP limit on 480 volt.

The above quoted specification may be modified to allow the use of across the line starting device for motors up to and including 200-HP by specific approval of PEU for each motor installation. Starters must conform to latest National Electric Manufacturer's Association Standards and the installation must be in accordance with the National Electric Code. Magnetic contractors in full voltage motor starters must have a coil capable of sealing in the contractor at 75% rated voltage. All motors must have three element overload protection, one element in each conductor to the motor.

In cases where the operation of the motor results in one start in any five hour period. PEU may review the conditions surrounding the installation and make such changes in the locked rotor starting currents as may be deemed justifiable in the case under study.

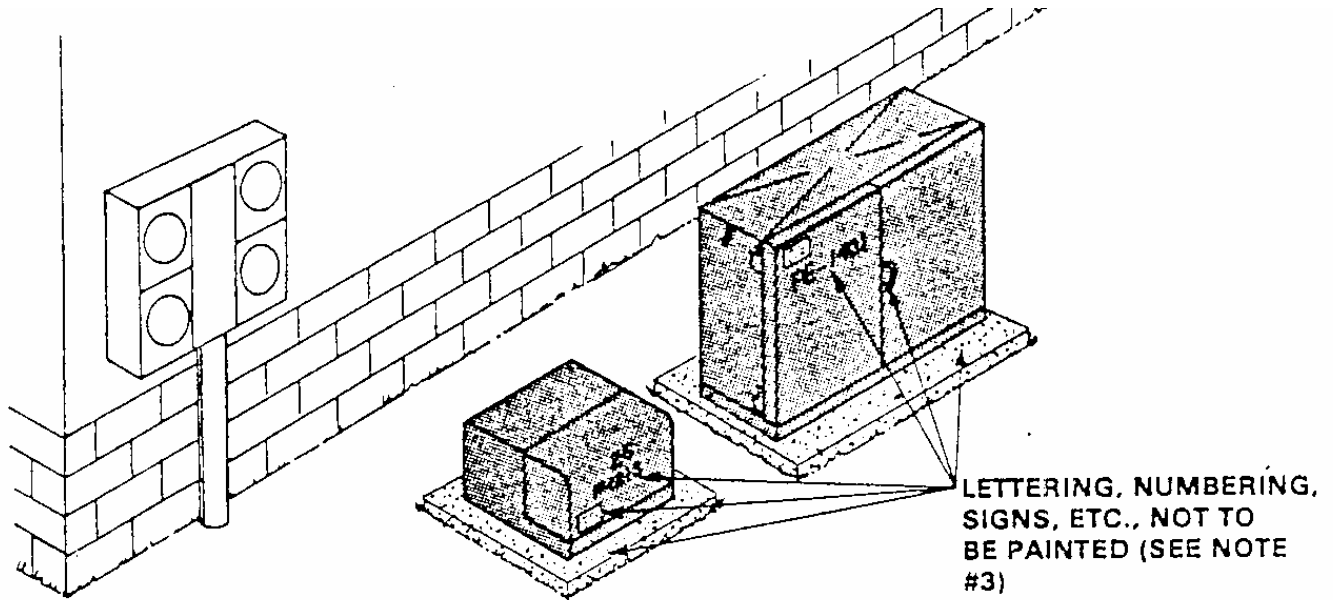
Maximum permissible current values in the above reference apply to an installation of a single motor. Starters may be omitted on the smaller motors of a group installation, when their omission will not result in a starting current in excess of the allowable starting current of the largest motor of the group.

In the case of irrigation installations PEU will require that all motors of greater than 30-HP will be served at 480 volts or greater.

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**GUIDELINES FOR PAINTING PEU EQUIPMENT - GI-7**

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**NOTES:**

1. PEU will allow painting of pad mounted equipment such as transformers, switching and fusing cubicles and capacitor enclosures. In no instance will poles, substation fences or other PEU equipment be painted.
2. Only acrylic enamel paint is acceptable. All pieces of equipment in a location must be painted the same color. Insulating or restrictive coating such as plaster, mortar or roofing tar that may affect the ventilation and heat transfer process will **NOT** be allowed.
3. All identifying lettering and numbering, warning signs, handles, locks and concrete pads must **NOT** be painted over.
4. If PEU replaces any equipment, the new piece(s) will be standard utility color. The customer may repaint the new equipment following these guidelines.
5. If there is more than one piece of equipment in one location, all pieces of equipment must be painted the same color. If PEU replaces a piece of equipment, the customer must paint it to match the existing equipment within 30 days. If this is not done, PEU will paint the older (customer painted) equipment to standard utility color and charge the customer for the work.
6. PEU shall not be liable for any damage or injury incurred during customer painting of equipment. If, during routine operation or maintenance of the equipment, customer paint is damaged, PEU will not be liable.
7. When PEU determines that the equipment painted by the customer is in need of repainting due to rust, etc., the customer shall be notified and allowed 30 days to repaint the equipment. If the equipment is not repainted within the 30 days, PEU will repaint it to standard utility color.
8. PEU retains the right to charge customers full cost of restoring its equipment to acceptable condition if the customer fails to comply with these guidelines or has painted PEU equipment without permission.

Page Electric Utility Service Specifications

GUIDELINES FOR PAINTING PEU EQUIPMENT - GI-7

APPLICATION TO PAINT PAGE ELECTRIC UTILITY EQUIPMENT

I agree to paint PEU's equipment listed below following the guidelines established by PEU.

PEU Equipment: Address Where Equipment is Located:

NSC - \_\_\_\_\_

NSC - \_\_\_\_\_

NSC - \_\_\_\_\_

NSC - \_\_\_\_\_

N - \_\_\_\_\_

N - \_\_\_\_\_

N - \_\_\_\_\_

N - \_\_\_\_\_

Name: \_\_\_\_\_ Coordinates: \_\_\_\_\_

Address: \_\_\_\_\_ Phone Number: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Title: \_\_\_\_\_

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FOR PEU'S USE ONLY

Field  
Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Routing:

Original: PEU Business Office  
Copy: To Customer

Copy: Customer Correspondence